ABSTRACT

EFFECT OF *CURCUMIN* ON VITREORETINAL VEGF CONCENTRATION IN HYPERGLYCEMIC RAT MODELS (Experimental Study in Wistar Rats)

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Objective : To evaluate effect of curcumin in vitreo-retinal concentration of VEGF in hyperglycemic rat models

Method : This study is a true experimental – in vivo study with randomized control group post test only design. We used 45 wistar rats that were divided into 3 groups for 15 (0.33%) rats each. The rats were divided into control group, hyperglycemia group, and hyperglycemia-curcumin group. The level of VEGF were quantified in the vitreous and retina by an ELISA methods using a kit from Elabscience. This assay was sensitive to the concentration of VEGF as low as 18.75 pg/ml.

Result : The VEGF concentration in vitreous of the normal rats, hyperglycemia rats without and with curmin were 2.83µg/ml, 3.37 µg/ml, and 3.14 µg/ml, respectively. The VEGF concentration in retina in those three groups were 3.32 µg/ml, 4.18 µg/ml and 3.80 µg/ml, respectively. Vitreal VEGF concentration in hyperglycemic rats without curcumin were significantly higher compared to vitreal VEGF concentration in normoglycemic and curcumin-treated hyperglycemic rats. Vitreal and retinal VEGF concentration in curcumin-treated hyperglycemic rats were similar with vitreal and retinal VEGF concentration in normoglycemic rats. Retinal VEGF concentration in curcumin-treated hyperglycemic rats were insignificantly lower than retinal VEGF concentration in hyperglycemic rats.

Conclusion : This study showed curcumin beneficial effects in lowering VEGF level in vitreous and needs further investigations for the insignificant difference in VEGF level in retina.

Keyword : curcumin, diabetes mellitus, streptozotocin, diabetic retinopathy, hyperglycemic rat models, vascular endothelial growth factors